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EXAMINER	
LAZORCIK, JASON L	
ART UNIT	PAPER NUMBER
1791	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/756,088	TORR ET AL.	
	Examiner	Art Unit	
	JASON L. LAZORCIK	1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 January 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *30-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *30-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 30 through 39 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement.

The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Specifically regarding **claim 30**, the claimed step of "operating the quench at a quench pressure" fails to establish a sufficient relationship between the glass material and the method of processing steps to be considered enabling for one of ordinary skill. Applicants appear to cite this operating quench pressure of the quench nozzle in order to establish a set of experimental conditions (e.g. rate of cooling of the glazing) used in the quenching operation. That said, the mere reference to a "quench pressure" in the absence of any structural details of the tempering equipment fails to permit one of ordinary skill to make or use the invention without undue experimentation.

Applicants claims as currently presented are construed to provide for a function (e.g. the quench is operated at a quench pressure at least 20% less than the quench

pressure of 17/16 kPa (for the upper and lower quench nozzles, respectively)) in the absence of any corresponding apparatus structure. That is, the pending claims provide substantially no nexus between the step of heating the glass sheet and the ultimate properties of the tempered sheet except for the limitation drawn to the operating pressure. Now looking to the specification, except for a vague reference to "conventional tempering methods" (see page 8), Applicant provides no direction regarding the equipment or other conditions employed to achieve the experimental results in Tables 1 through 5. Applicants working examples also do not remedy this deficiency.

Applicant will further appreciate the extraordinary breadth of different quench apparatus designs routinely utilized in the glass manufacturing arts, and that an acceptable operating pressure on one quench system may provide wholly unsatisfactory results on a quench apparatus of a different design. Since Applicant has failed to provide any guidance regarding the nature of the “conventional tempering apparatus”, it would appear evident that the quantity of experimentation requisite to make and or use the disclosed invention would indeed present an undue burden for one of ordinary skill in the art.

Further, **Claim 30** is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed,

had possession of the claimed invention. Examiner has found no supporting basis for Applicants recited limitation wherein the tempering operation is carried out under such conditions as required to achieve "ANSI Z26.1-1996" standards in the application as originally filed.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 30 through 39 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. With particular respect to claim 30 and even in view of the newly added pressure limitations (e.g. "quench pressure of 17/16 kPa (for the upper and lower quench nozzles, respectively)), the particular metes and bounds for which Applicant seeks protection remain unclear and indefinite. It remains the Examiners position that simply declaring a quench pressure in the manner set forth in claim 30, fails to impart clearly defined boundaries to Applicants claimed invention. As noted in the rejection under 35 U.S.C. §112, first paragraph above there exists substantially no nexus between the sheet heating step and the resultant glass sheet properties except for reference to an operating pressure. The omission of the structural cooperative relationship between the operating pressure and the apparatus renders the particular metes and bounds of the instant claim unclear and indefinite.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Preliminary Note:

At the outset, it is noted that Applicants claim amendment dated January 24, 2008 has deleted the limitation "the improvement comprising" from line 7 of independent **claim 30**. Although Applicants amendment has recast the instant claim in non-Jepson format (see MPEP §2129), the text of the claim preceding this now deleted limitation is still held to be admitted prior art and applicant's remarks further indicate that the method of claim 30 is an improvement in a method (i.e. a Jepson type claim without reciting it in Jepson format). Specifically,

"A method of tempering a glazing comprised of boron-free glass having a magnesium oxide content of less than 1% by weight, a coefficient of

thermal expansion greater than 95 x10-7 per degree Centigrade and a Fracture toughness of less than 0.72 MPam1/2, the method including the steps of;

heating the glass in a furnace; and subsequently quenching the glass with air from upper and lower quench nozzles in a quench"

is held to be admitted prior art. Similar scenario exists for independent claims 35, 36, and 37 with the specific comment being that 3mm, 4mm, and 5mm thick glazings of the noted properties are understood as admitted prior art from claims 35, 36, and 37, respectively.

Similarly Applicants claim amendment dated January 24, 2008 has deleted the limitation "the improvement comprising" from line 9 of independent claim 38. Although Applicants amendment has recast the instant claim in non-Jepson format (see MPEP §2129), the text of the claim preceding this now deleted limitation is still held to be admitted prior art. Specifically,

"a method of tempering an automotive glazing, the automotive glazing being of boron-free glass comprising at least 14.5% by weight Na2O, at least 10.5% by weight CaO, at least 0.5% by weight total iron (measured as Fe2O3) and having a magnesium oxide content of less than 1% by

weight, the glass having a ferrous value (% ferrous) of at least 30%, the method including the steps of

heating the glass in a furnace and

subsequently quenching the glass with air from upper and lower quench nozzles in a quench"

is held to be admitted prior art.

Claims 30 through 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Littleton (2,311,846) in view of Cheng (WO 91/07356).

Cheng relates a composition of soda-lime silica glass comprising:

1. From about 65 to about 75 weight percent SiO_2
2. From about 10 to about 15 weight percent Na_2O
3. From about 0 to 4 weight percent K_2O
4. From about 1 to 5 weight percent MgO
5. From about 5 to 15 weigh percent CaO
6. From about 0 to about 3 weight percent Al_2O_3
7. "A total amount of Iron in the batch …equal from 0.7% to about 1.25% by weight, expressed as Fe_2O_3… the degree of reduction is critical and must equal between 23 and 29%." (pg 11, Lines9 to 13)
8. From about 0.02 to o.85 weight percent TiO_2

The family of glass compositions with constituent ingredients as set forth above, overlapping a composition (Composition I) as set forth in the applicants specification (pg 7, lines 20-31), is understood to define at least one soda-lime silica glass composition which inherently possess all of the physical properties of applicants said Composition I as set forth in the specification (Pg 8, lines 1-4). The above composition which does not recite a concentration of boron is understood to be effectively "boron-free" by omission. Further, the disclosed concentration of magnesium oxide (MgO) of about 1 to 5 weight percent is understood to directly read upon the claimed magnesium oxide concentration of "less than 2% by weight".

As such, it would be obvious to fabricate at least one silica glass composition according to the Cheng compositional ratios which possess a thermal expansion coefficient, α, of 98.9 x 10-7 $^{o}C^{-1}$ and a fracture toughness of 0.66 MPam $^{1/2}$. Applicant also defines a benchmark standard for comparison or the "standard composition" of glass referred to as OPTIKOOL^{TM} 371 having a thermal expansion coefficient, α, of 92.4 x 10^{-7}. Applicant further indicates that a sample according to Composition 1 requires 8 kPa of cooling pressure to achieve ECE R43 standards versus the "standard composition" requirement of 17 kPa or higher (pg 14, Lines 1-14).

Cheng fails to explicitly indicate that the disclosed glass would require a given quenching pressure during a tempering process or that the given quenching pressure would be 20% less than that required for a "standard composition". However according to the applicants disclosure (pg 14, Lines 1-14), the Composition 1 outlined above

requires approximately 47% (8kPa/ 17kPa) of the required quenching pressure to achieve the "required standards" when compared to the "standard composition". It is therefore understood that Cheng's composition, inherently having the same physical properties of the Applicants glass and would therefore inherently require 20% less quench pressure than is required by the "standard composition" to achieve a temper in accord with the "required standards" or in the instant case the standards according to ANSI Z26.1-1996.

Accepting that the Cheng glass would inherently require a quench pressure 20% less than the "standard composition", the Littleton disclosure provides further insight into the governing relationship between the properties of a glass composition and the chilling conditions or quenching conditions required to achieve a given degree of temper. Littleton indicates that,

> "**the degree of temper** obtained **under specific chilling conditions** is controlled **primarily by the thermal expansion coefficient of the glass** from which an article is made although the thermal conductivity, the thickness of the glass, and its shape are also factors of somewhat lesser importance. **The higher the expansion coefficient of the glass, the greater will be the degree of temper of the article** and the lower the expansion coefficient, the lesser will be the degree of temper for a like treatment."

Littleton teaches a direct functional relationship between the thermal expansion coefficient (TEC) and the degree of temper realized in a glass sheet under set quenching conditions. Specifically, a high TEC yields a high temper while a low TEC yields a low temper holding all other variables equivalent in a given temper process. Applicant teaches that the inventive composition has a higher TEC (e.g. 98.9E-7/C versus 92.4E-7/C) and requires a lower quench pressure than the "standard composition" (e.g. 8kPa versus 17kPa). In effect, Applicant has provided an experimental evidence for the functional relationship set forth by Littleton.

In other words, since Applicants composition has a higher TEC, it requires a lower quench pressure or less severe quenching conditions to achieve the same level of temper as the standard composition with a lower TEC. One of ordinary skill in the art would clearly recognize the potential economic benefits for both operating costs as well as capital investment costs to be realized by producing a tempered glass product at a lower quench pressure (e.g. lower utilities costs and less robust equipment). Therefore one of ordinary skill with the Littleton teachings in hand would naturally seek a glass with a lower TEC over a glass with a high TEC holding other physical variables substantially equivalent.

With these points in mind, Cheng teaches a narrow range of glass compositions which reads directly upon Applicants claimed glass composition, however Cheng is silent regarding performing a tempering operation upon said glass. Since the Cheng glass reads upon Applicants composition, the prior art composition is understood to

inherently provide every physical property of the Applicants claimed composition. Specifically, the Cheng glass would inherently provide a TEC substantially equivalent to that claimed by the Applicant which is, by Applicants own admission, higher than the TEC of the "standard composition" of glass. It would therefore be obvious to one of ordinary skill, appreciating the relationship between TEC and temper as taught by Littleton, to utilize the glass composition as taught by Cheng.

Further, "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation."; see In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation (See In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) and In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977)). In the instant case, the degree of temper in a glass sheet is a direct function of the TEC and the tempering conditions. Therefore degree of temper is deemed a result-effective variable of method of tempering a glass article. Since optimization of this result effective variable would be undertaken through routine experimentation, the immediate claim wherein "operating at a quench pressure 20% less than the quench pressure required to temper a corresponding glazing of standard composition to standard ANSI Z26" is obvious over the prior art. Restated, one of ordinary skill in the art, aware of the requisite regional standards (e.g. ANSI Z26) and recognizing the

relationship between tempering conditions, the TEC of the glass material, and the degree of temper required by these standards, would arrive at a set of quenching conditions 20% less than the level utilized for a glass of standard composition through simple empirical optimization.

Regarding Claim 31, the above rejection of Claim 30 indicates that the Cheng glass composition would require approximately 47% of the quench pressure of the "standard composition" which is read as at least 25% less than the quench pressure required to temper a corresponding glazing of standard composition.

With respect to Claim 32, Cheng indicates (Pg 5, Lines 17-18) that the disclosed glass may be utilized for "a nominal glass thickness of 3 to 5mm" and that "the glass sheets for windshield use are of a thickness in the range of from about 1.7 to about 2.5mm" (Pg 6, Lines 11-15). Cheng further indicates that the glass sheets of the disclosed invention may be made via a float glass process (Pg 8, Lines27-28).

Claim 33 is rendered obvious in light of the rejection of Claim 30 above where the quench pressure for the Cheng glass would inherently be 8 kPa or "not more than 12.5 kPa" for approximately 3 mm glass.

Claim 34 is rendered obvious in light of the rejection of Claim 30 above where the quench pressure for the Cheng glass would inherently be 8 kPa or "not more than 10 kPa" for approximately 3 mm glass.

Claim 35 is rendered obvious in light of the rejection of Claim 30 above where the Cheng glass was shown to inherently possess a thermal expansion greater than 93 x 10-7 oC-1 and a Fracture toughness of less than 0.72 MPam 1/2 and the quench

pressure required for the Cheng glass would inherently be 8 kPa or "not more than 10 kPa" for approximately 3 mm glass.

Regarding Claims 36 and 37 and with particular reference to the disclosure of Littleton in the Claim 30 rejection above, Littleton asserts

> **"The degree of temper** obtained **under specific chilling conditions** is controlled primarily by the thermal expansion coefficient of the glass from which an article is made although the thermal conductivity, **the thickness of the glass**, and its shape **are also factors of somewhat lesser importance**."

In light of the argument set forth in the Claim 30 rejection above, the thickness of the glass sheet will dictate the degree of temper obtained for a given set of chilling conditions or a given "quench pressure". Given the relationship between thickness and resultant temper, it would be obvious to one of ordinary skill in the art to optimize the quench pressure through routine experimentation while holding all other variables constant in order to optimize the resultant temper in the sheet of glass.

Claim 38 is rejected as being obvious in light of the relevant portions of the rejection of Claim 30 above and the following. Specifically, the rejection of Claim 30 above sets forth a glass composition comprising at least 14.5% by weight Na2O, at least 10.5% by weight CaO, at least 0.5% by weight total iron and being "substantially" magnesium free where 1-5% MgO is understood as being 95% to 99% magnesium free or "substantially magnesium free". Also as indicated in the rejection of Claim 30, it would be obvious to operate the tempering procedure at a quench pressure at least

10% less than the quench pressure of a glass sheet of “standard composition”. Regarding the instant claim, Cheng does not explicitly indicate that the degree of reduction of the iron or “ferrous value (% ferrous) (should be) of at least 30%”. However, the immediate reference does indicate that more highly reduced iron (e.g. above 29%) would cause the visible light transmittance to drop below 70% (pg11, Lines 18-20). It would therefore be obvious to one of ordinary skill in the art seeking to produce “tinted” windows with a light transmittance below 70% in the process as set forth by Cheng to increase the relative percentage of reduced iron in the glass melt to above 30% as discussed.

Claim 39 is rejected as being obvious in light of the arguments set forth in the rejections of Claim 30 and Claim 38 as presented above.

Response to Arguments

Applicant's arguments filed January 24, 2008 have been fully considered but they are not persuasive.

Rejections Under 35 U.S.C. §112, First Paragraph

Applicant argues that by virtue of the presented amendments, the claimed invention now "goes on to describe the operating conditions of the quench in relative terms, relative to a standard condition”. Applicant concludes that the invention as presently claimed would be enabling for one of ordinary skill in the art.

For at least the reasons presented in the rejection of claims under 35 U.S.C., §112, first paragraph above, this argument is held to be unpersuasive.

Specifically, Applicants specification as originally filed provides no nexus between the claimed quench pressure and the resulting properties of the glass sheet. Applicant's reference to a step of "operating" a quench at a given pressure is insufficient to permit one of ordinary skill in the art to make and or use the invention in the absence of undue experimentation. Further, the scope of the claim is such that it would be construed to apply to each and every different manner of tempering equipment. On this matter, Applicant provides neither explicit direction nor working examples of sufficient detail to guide one of ordinary skill in the proper use of the invention.

As noted in the rejection above, an extraordinary variety of different quench apparatus designs are routinely employed in the glass manufacturing arts, and what would be considered as an acceptable operating pressure for one type of quench system may provide wholly unsatisfactory results on a quench apparatus of a different design. In short, claiming a broad "operating" procedure with a particular operating pressure simply fails to provide sufficient disclosure for one of ordinary skill in the art to make and or use the instant invention when no further guidance is present in the specification.

Rejections Under 35 U.S.C. §112, Second Paragraph

Applicant argues that claiming "operating conditions" as a comparison to "a known standard" is definite. On this matter, the Examiner disagrees.

In fact, it is precisely the indefinite nature of the "known standard" that in large part renders the instant claim unclear and indefinite. Applicant has provided substantially no guidance for one of ordinary skill in the art to ascertain the precise metes and bounds of this known method other than to indicate that it is a "conventional tempering method" and to dictate the physical properties of the resulting glass product. In addition and as noted in the rejections above, the technologies which are considered "conventional" in the art as well as the requisite standards (e.g. ANSI Z26) by which the instant product is defined are expected to vary with time. For at least the foregoing reasons, the precise metes and bounds for which Applicant seeks patent protection in the instant claims are rendered unclear and indefinite.

Rejections under 35 U.S.C. §103

Brief Summary of the Grounds of Rejection

To briefly summarize the basis for the art rejection set forth above, Littleton teaches that in a quenching operation, the degree of temper achieved in a glass is a function of the thermal expansion coefficient of the glass. Specifically, a High TEC yields a high degree of temper holding other variables substantially constant. Therefore it would be obvious to one of ordinary skill in the art at the time of the invention seeking to minimize production costs to choose a high TEC glass in order to reduce both the equipment costs and operating costs associated with performing the quench operation.

Littleton teaches performing this quenching operation on a composition of glass which overlaps the narrow range of compositions taught in the Cheng reference.

Acknowledging the close relationship between the Cheng compositions and those disclosed for use in the Littleton teachings, one of ordinary skill would have found ample motivation to explore other compositions from Cheng's teachings. Similarly, Cheng teaches at least one composition which directly reads upon Applicants preferred composition of glass and therefore inherently embodies the claimed TEC and Fracture toughness properties. Specifically according to Applicants disclosure, the Cheng reference must teach at least one composition which inherently requires only ~47% (read at least 20% less) quench pressure than the “standard composition”.

Absent any compelling and substantially unexpected results to the contrary, it would have been a merely obvious extension over the Littleton teachings utilize one of the high TEC glass compositions taught in the Cheng reference. Specifically, it would have been obvious to utilize a high TEC Glass of the Cheng disclosure as a means to decrease the capital investment costs and operating expenses associated with the tempering operation in the Littleton process.

First, Applicant argues that Cheng fails to disclose a method of tempering a glazing and that Littleton contains no teaching for tempering a glass of the having the claimed composition. Applicant herein effectively alleges that neither of the references considered independently of the other renders all of the limitations of the instant claim obvious. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208

USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant further alleges that Cheng does not provide for a glass composition which encompasses Applicants claimed composition, however Applicant fails to address the narrow family of glass compositions presented in Cheng on page 9, lines 1-11. Applicant further argues that the Cheng reference to iron oxide refers to the batch composition. While this may be the case, Chen Page 11, lines 15-17 make plain that this batch composition results in an iron oxide content of "from about 0.51 to about 0.96 weight percent Fe2O3" in the resultant glass; a value which still clearly reads upon Applicants preferred composition.

Closing remarks:

Finally, it is here noted that Applicant has previously indicated that it was known in the art at the time of the invention to temper automotive glazings of the claimed composition by heating and subsequently quenching a glass sheet. Specifically looking to claim 38, Applicant presented the following as admitted prior art.

> "a method of tempering an automotive glazing, the automotive glazings being of boron-free glass comprising at least 14.5% by weight Na2O, at least 10.5% by weight CaO, at least 0.5% by weight total iron (measured as Fe2O3) and having a magnesium oxide content of less than 1% by

weight, the glass having a ferrous value (% ferrous) of at least 30%, the method including the steps of

heating the glass in a furnace and

subsequently quenching the glass with air from upper and lower quench nozzles in a quench"

It is the Examiners understanding that Applicant has admitted that essentially every element of the presently claimed invention was known to the inventors at the time of filing. Relevant limitations include *inter alia*; glass glazings having a particular thickness of the 3, 4,and 5mm for a glass having a preferred MgO content of less 1% by weight, at least 0.5% total iron, and a ferrous value of at least 30%, wherein said glass presents a CTE of greater than 95x10-7, and fracture toughness of less than 0.72 MPam1/2. Applicant further admits that it was known to heat and to subsequently quench these glass sheets by blowing air from upper and lower quench nozzles in a quench.

By Applicants own admission, the advance over this admitted prior art process lies in the pressure of operating the quench apparatus, but for the reasons listed in the rejections above this vague step of "operating" the quench is not adequately enabled by Applicants disclosure and the scope of the claims is unclear and indefinite. The cited prior art to Cheng further confirms Applicants admission that glass compositions as claimed were known in the art and Littleton

teaches that it was known to subject similar glass compositions to quenching operations.

In view of the foregoing arguments and the stated predictable relationship between glass thickness and resultant temper, the Examiners position remains unchanged. Specifically, it would be obvious to one of ordinary skill in the art to optimize the quench pressure through routine experimentation while holding all other variables constant in order to the desired degree of temper in the sheet of glass. Applicants preferred quench pressure of "at least 20% less than the quench pressure…required to temper a glazing of standard composition to the standard" would have been derived through no more than conventional process optimization and quality control protocols.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON L. LAZORCIK whose telephone number is (571)272-2217. The examiner can normally be reached on Monday through Friday 8:30 am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Steven P. Griffin/
Supervisory Patent Examiner, Art Unit 1791

JLL